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AMENDMENTS TO THE CLAIMS

Claims 1-26. (Canceled)

Claim 27. (Previously presented) A method for enabling real-time mixing of synthetic images and video images by a user, comprising the steps of:

producing a flow of synthetic images by combining three-dimensional geometric shapes with textures of two-dimensional images using a data processing unit comprising a motherboard; a graphic board for rendering and displaying a scene, and comprising a 2D/3D processing acceleration processor, and a memory zone comprising a work buffer and a texture memory; and acquisition means for acquiring, in real time, video images in a video buffer; and

tracing said scene by creating visual interactions between said flow of synthetic images and at least a flow of video images; and

performing a specific rendition of said scene by copying, upon each rendering of said scene, said video buffer into said memory zone of said graphic board; and tracing said synthetic images into said memory zone of the graphic board, thereby improving the quality of said scene and reducing the processing time without employing expensive proprietary data processing units.

Claim 28. (Previously presented) The method of claim 27, wherein the step of performing comprises the steps of:

copying, upon each rendering of said scene, said video buffer into the said work buffer; and

tracing said synthetic images into said work buffer.

Claim 29. (Previously presented) The method of claim 28, wherein said video buffer comprises interlaced video lines; and further comprising the steps of:

copying even video lines of said video buffer, upon a first rendition of said scene, into said work buffer; and

copying odd video lines of said video buffer, upon the following rendition of said scene, into said work buffer.

Claim 30. (Previously presented) The method according of claim 27, further comprising the steps of:

initializing prior to the specific rendition by providing a dedicated texture in said texture memory of said graphic board, wherein said dedicated texture has the size of said video buffer and is dedicated to copying said video buffer into said texture memory; and

copying said video buffer into said dedicated texture and tracing said scene completely, using said dedicated texture to texture some of polygons of the said scene.

Claim 31. (Previously presented) The method of claim 30, wherein said video buffer comprises interlaced video lines; and further comprising the steps of:

copying even video lines of said video buffer, at the time of a first rendering of said scene, into said dedicated texture; and

copying odd video lines of said video buffer, at the time of the following rendition of said scene, into said dedicated texture; and

applying a translation from said video buffer of about one half video line into the rendition of said scene either by modifying texture coordinates of said dedicated texture or the coordinates of the polygons textured by said dedicated texture, thereby improving the image quality.

Claim 32. (Previously presented) The method of claim 27, wherein said acquisition means comprises a driver having a new video buffer for each new video image; and wherein the step of performing renders said scene in synch with presentation of each new video buffer.

Claim 33. (Previously presented) The method of claim 27, wherein said acquisition means comprises a driver having a new video buffer for each new video image; and further comprising the steps of:

filling a buffer memory with each new video buffer, employing a video capture performance unit;

copying one of the new video buffers contained in said buffer memory into said texture memory of said graphic board; and

asynchronously performing the rendition of the said scene in relation to presentation of each new video buffer.

Claim 34. (Previously presented) The method of claim 27, further comprising the step of applying an anti-aliasing function in the tracing of said scene.

Claim 35. (Previously presented) The method of claim 27, further comprising the step of applying a transparency function in the tracing of said scene.

Claim 36. (Previously presented) The method of claim 27, further comprising the step of applying non-linear distortions to said video image in said video buffer when texturing polygons of said scene using a dedicated texture, thereby correcting optical distortions of the video image.

Claim 37. (Previously presented) The method of claim 27, further comprising the step of applying pixel shader functions to said video buffer, thereby permitting the processing of chroma key type.

Claim 38. (Previously presented) The method of claim 30, the said data processing unit comprising one or more acquisition means, each having a video buffer; and further comprising the steps of:

copying the video buffer of one of said acquisition means into a second dedicated texture of said graphic board; and

texturing at least in part said scene using said second dedicated texture, thereby obtaining real reflections on synthetic objects.

Claim 39. (Previously presented) The method of claim 33, further comprising the step of slowing the copying of one of the video buffers contained in a buffer memory into the said texture memory of said graphic board, thereby slowing the display of video images with respect to the display of the synthetic images.

Claim 40. (Previously presented) System for enabling real-time mixing of synthetic images and video images by a user, comprising:

a data processing unit for producing a flow of synthetic images by combining three-dimensional geometric shapes with textures of two-dimensional images and tracing a scene by creating visual interactions between said flow of synthetic images and at least a flow of video images, said data processing unit comprising:

a motherboard comprising a data processor;

a graphic board for rendering and displaying said scene; wherein said graphic board comprises a 2D/3D processing acceleration processor comprising a tracing device, and a memory zone comprising a work buffer and a texture memory; and

an acquisition device for acquiring, in real time, video images in a video buffer; and

wherein said data processing means is operable to perform a specific rendition of said scene;

wherein said data processor is operable to copy, upon each rendition of said scene, said video buffer into said memory zone of said graphic board; and

wherein said tracing device is operable to trace said synthetic images into said memory zone of the graphic board, thereby improving the quality of said scene and reducing the processing time without employing expensive proprietary data processing units.

Claim 41. (Previously presented) The system of claim 40, wherein said data processing means comprises first copying device for copying, upon each rendition of said scene, said video buffer into said work buffer; and wherein said 2D/3D processing acceleration processor comprises a first computing device for tracing said synthetic images into the said work buffer.

Claim 42. (Previously presented) The system of claim 41, wherein said video buffer comprises interlaced video lines; and wherein said first copying device comprises a first selection device for selecting and copying even video lines of said video buffer at the time of the first rendering, and a second selection device for selecting and copying odd video lines of said video buffer at the time of the next rendering.

Claim 43. (Previously presented) The system of claim 40, wherein said data processing means comprises:

a texture device for providing, prior to the specific rendition, a dedicated texture in said texture memory of said graphic board, said dedicated texture having the size of the said video buffer; and

second copying device for copying said video buffer into said dedicated texture to carry out a specific rendition; and

wherein said 2D/3D processing accelerating processor comprises a second computing device for completely tracing said scene using said dedicated texture to texture polygons of said scene.

Claim 44. (Previously presented) The system of claim 43, wherein said video buffer comprises interlaced video lines; wherein said second copy means comprises:

a third selection device for selecting and copying said even video lines in a first rendition;

a fourth selection device for selecting and copying said odd video lines in the following rendition;

a computing device for applying a translation from said video buffer of about one half video line in the rendition of said scene either by modifying texture coordinates of said dedicated texture or the coordinates of polygons textured by said dedicated texture, thereby improving the image quality.

Claim 45. (Previously presented) The system of claim 40, wherein said acquisition device comprises a driver having a new video buffer for each new video image; and wherein said data processor synchronously performs the rendition of said scene with presentation of each new video buffer.

Claim 46. (Previously presented) The system of claim 40, wherein said acquisition device comprises a driver presenting a new video buffer for each new video image; and wherein said data processor comprising:

a transfer device for filling a buffer memory with each new video buffer, employing a unit of execution or thread of video capture, and

a third copying device for copying one of the video buffers contained in said buffer memory into said texture memory of graphic board; and

wherein said data processor is operable to asynchronously perform the rendition of said scene with respect to the presentation of each new video buffer.

Claim 47. (Previously presented) The system of claim 40, wherein said data processor is operable to apply an anti-aliasing function when said scene is being traced.

Claim 48. (Previously presented) The system of claim 40, wherein said data processor is operable to apply a transparency function when said scene is being traced.

Claim 49. (Previously presented) The system of claim 40, wherein said data processor is operable to apply non-linear distortion to said video image in said video buffer when texturing polygons of said scene using a dedicated texture, thereby correcting optical distortions of the video image.

Claim 50. (Previously presented) The system of claim 40, wherein said data processor is operable to apply pixel shader functions to said video buffer, thereby permitting the processing of the chroma key type.

Claim 51. (Previously presented) The system of claim 40, wherein said data processing unit comprises one or more acquisition devices; wherein said data processor is operable to copy said video buffer from one of said

acquisition devices into a second dedicated texture of said graphic board, and wherein said 2D/3D processing acceleration processor is operable to texturize said scene at least in part by using said second dedicated texture, thereby obtaining real reflections on synthetic objects.

Claim 52. (Previously presented) The system of claim 40, wherein said data processor is operable to slow the copy of one of said video buffers contained in a buffer memory into said texture memory of said graphic board (8), thereby slowing the display of the video images with respect to the display of the synthetic images.